

Amendments to the Specification:

[0008] U.S. Patent No. 3,875,886 to Glasfeld et al. describesdiscloses an insulating layer comprising foamed plastic material in combination with a thin, solid barrier layer or liner applied thereto. However, the Glasfeld patent is directed to cryogenic fluid storage and accordingly addresses problems of extreme cold and ductility in conventional steel tanks. Conversely, the instant invention relates more specifically to fire hazards.

[0009] United States Patent No. 3,787,279 to Winchester describesdiscloses a fuel tank for military aircraft designed to minimize the damage caused by enemy gunfire. More particularly, the Winchester patent seeksdisclosure teaches how to reduce pressure pulses caused by the penetration of 0.50 caliber and larger projectiles in liquid fuel tanks. Winchester does not disclose the use of a Kevlar® polyester film material or Mylar® polyester film material as a flame shield.

[0010] United States Patent No. 5,087,513 to Kim describesdiscloses a flame retardant composite which may be woven into fabrics such as Kevlar® polycster film material, polyester or nylonNylon® synthetic silk for use as the first layer of a two layer composite. However, the Kim patentdisclosure is chemical in nature and does not suggest application of its particular chemical composition to a fuel tank application.

[0011] United States Patent No. 5,285,920 to McGarvey describesdiscloses an above-ground fire resistant tank having a thermal barrier which may be injected with foam. However, McGarvey does not suggest the use of Kevlar® polyester film material or Mylar® polyveter film material but suggests a hydrate aluminum-iron magnesium silicate to be used in conjunction with Portlandportland cement.

[0012] United States Patent No. 5,601,204 to Hall describesdiscloses an above-ground fuel storage tank having an inner space between an interior tank wall and an outer tank wall fillable with insulating material. However, the Hall patentdisclosure does not describeseach or suggest the application of a thin fireproof laminate to an insulating layer. Hall specificallyexpressly recommends the use of concrete as the insulating material, thereby producing a heavy structure.

[0013] United States Patent No. 5,833,782 to Crane et al. describesdiscloses an internal explosion containment enclosure substantially defined as a sandwich-like arrangement of two fiber-reinforced matrix skins and a foam core disposed therebetween. However, the Crane

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patent disclosure teaches the application of the foam barrier for application to explosive containment and not fuel storage.

[0014] United States Patent No. 5,924,134 to Taylor et al. describesdiscloses a protective garment with a foam liner sandwiched by Mylar® polyester film material layers to produce a fire-retardant composite. It should be noted that this patent disclosure is specifically directed to a garment and does not suggest the application of this barrier layer to above-ground fuel storage systems.

[0017] The present invention is an aboveground storage tank for flammable and combustible liquids having secondary containment capability, comprising an inner primary tank formed of steel for storing the liquid, an outer secondary tank formed of steel for encasing the inner primary tank defining a substantially uniform interstitial space therebetween, an insulating foam material disposed of in the substantially uniform interstitial space, and a fire resistant textile material sandwiched between the foam material and the outer secondary tank so that a fire resistant composite comprised of insulating foam and fire resistant textile material encases the inner primary tank. An outward bound particle impelled by an explosive force will thus encounter, in sequence, a steel wall of the primary tank, insulating foam material, fire resistant textile material, and a steel wall of the secondary tank. This sequence of materials is an important feature of the invention because this sequence maximizes the effectiveness of the novel storage tank in the event of an explosion.

[0018] The insulating foam material located in the interstitial area between the primary inner tank and the secondary outer tank can be polystyrene, urethanes, polymethyl methacrylate, or a variety of other polymers. For most embodiments and applications of the present invention, the foam material is preferably a synthetic polymer or rubber. The fire resistant textile material can be a high-temperature polyester film material such as Mylar® polyester film material or Kevlar® polyester film material.

[0032] FIG. 3 shows the double wall construction of the present invention in which the interstitial space 25 is filled with insulating material 40 and encased by the outer secondary tank wall 30 and the inner primary tank wall 20. In the preferred embodiment the insulating material 40 is a foam material comprised of including synthetic polymer such as polystyrene, urethanes, or

polymethyl methacrylate. Fire resistant textile material 50 that is sandwiched between the foam material and the outer secondary tank provides additional fire protection from leakage or penetration of the secondary tank 30. The fire resistant textile material 50 in the preferred embodiment is a high-temperature polyester film material such as Mylar® polyester film material or Kevlar® polyester film material.

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